Missile aiming system

A set of functionally integrated elements, devices and automatic systems located on the rocket and the rocket launcher, designed for prelaunch angular orientation (exhibition) of the stabilized platform of the triaxial gyrostabilizer with rocket motion measuring instruments (see Command-measuring instruments) in the required position, providing guidance of the rocket on target.

S.p.r. It includes devices for fixing the initial (basic) direction, a system for transmitting the basic direction to the platform of the triaxial gyrostabilizer, and a system for bringing the platform to the horizon and in azimuth.

Devices that implement the basic direction (optical prisms, collimators, auto-collimation goniometers) are installed on a stable base relative to the Earth, located outside the rocket (for example, on a launcher), which ensures high accuracy of aiming. The azimuth of the basic direction (ABN) is determined in advance or during prelaunch. The azimuth of the basic direction is determined using a gyrocompass.

In the direction transfer system, optical-mechanical and photoelectric devices are used, with which the basic direction is coordinated with the initial direction of the platform axis, implemented by a control element (prism) located on the platform.

Based on the known azimuth Abn and the azimuth Aps specified by the flight task, the azimuthal angle an = Aps-Abn is determined in the ground-based digital computer complex, by which the horizontal platform is rotated from its initial position using the platform azimuthal guidance system.

The mismatch of the directions of the axes associated with the missile and the axes of stabilization of the platform, resulting from the azimuthal guidance of the platform, is eliminated by the ballistic missile control system in the vertical section of the missile’s flight.

On the first short-range missiles, a stabilized platform was not used, and motion parameters meters were installed directly on the rocket. The azimuthal aiming of the rocket was carried out before launch by combining its plane of symmetry with the launch plane.

Accuracy and combat readiness to a large extent depends on the methods and algorithms used to determine the azimuth of the base direction. In S.p. modern missile systems are used and improved methods of autonomous exhibition platform triaxial gyrostabilizer without using external sources of information about the basic direction. The azimuth of the basic direction is determined using gyroscopic instruments and devices that are part of the triaxial gyrostabilizer. In this case, the basic direction is associated with the structural elements of the gyrostabilizer.